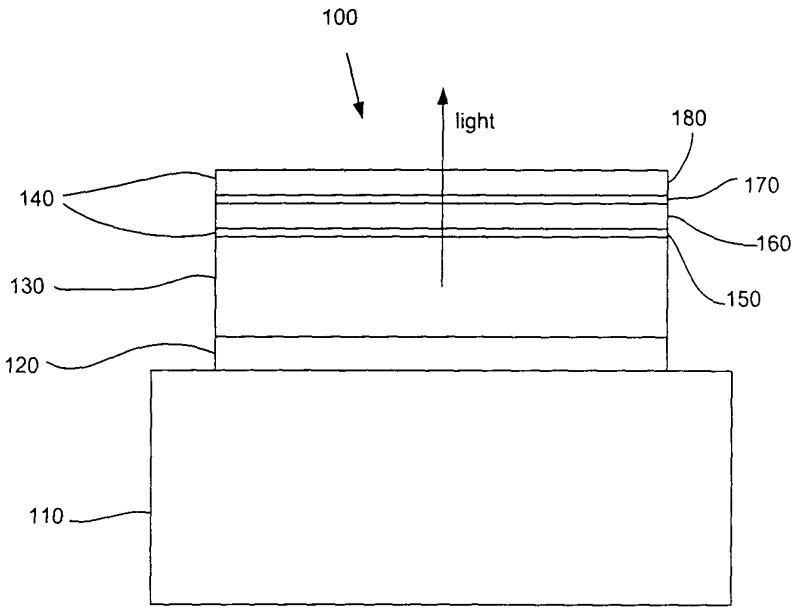



Figure 1

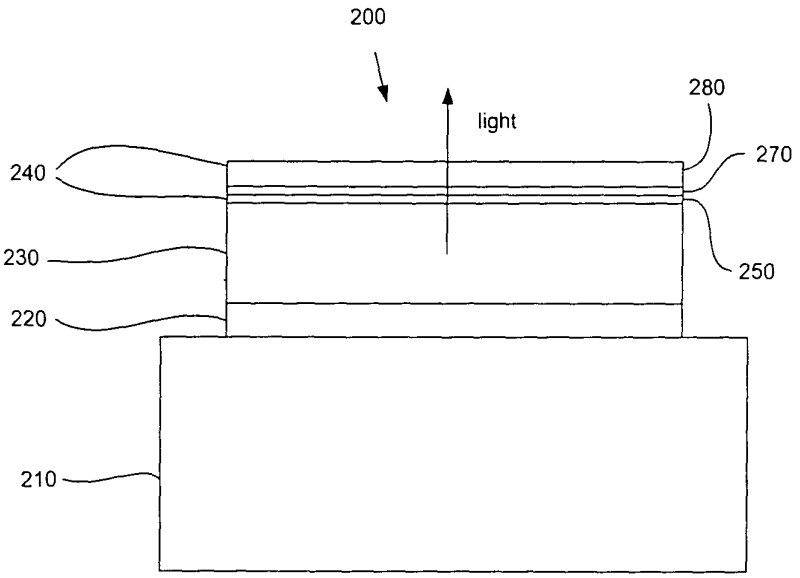



Figure 2

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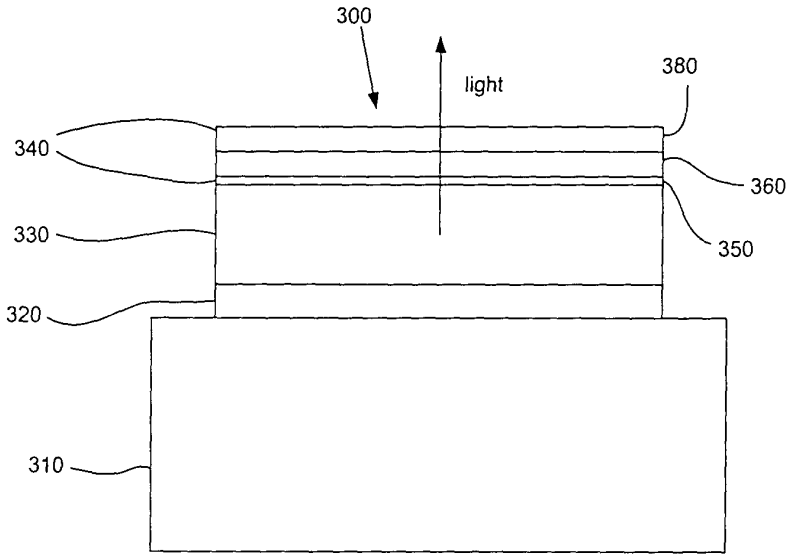



Figure 3

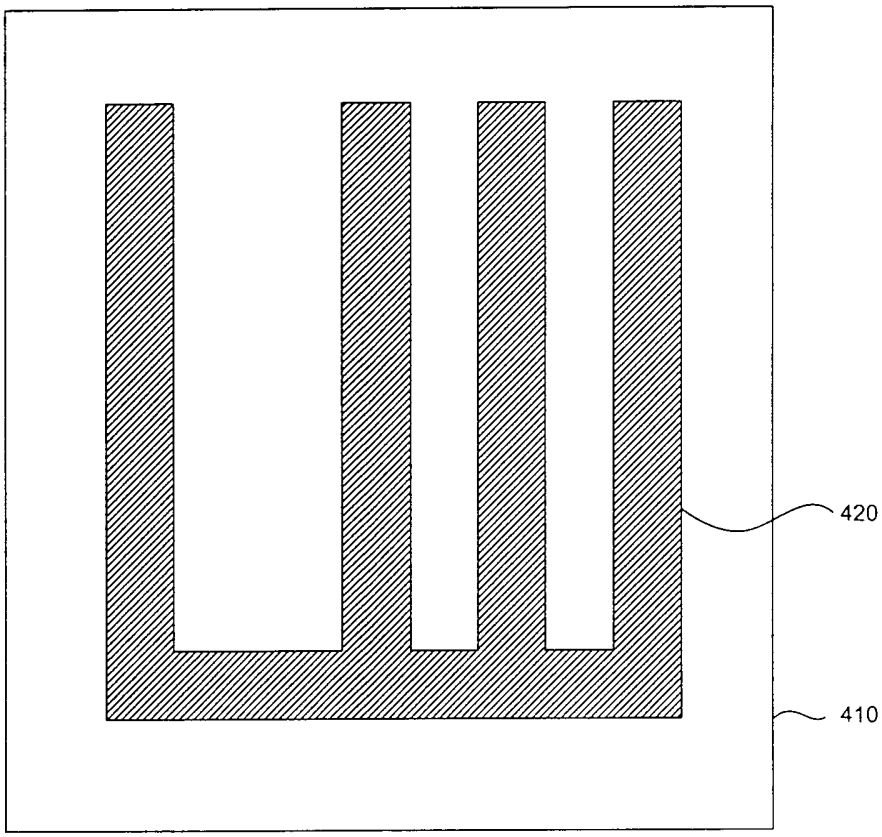
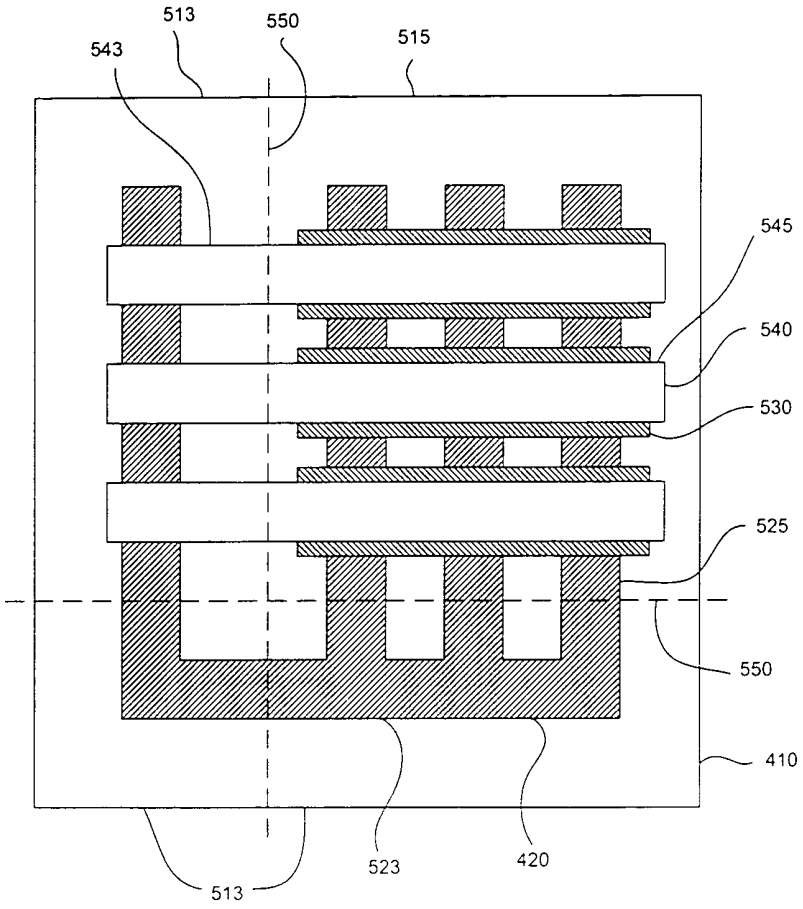



Figure 4

Figure 5



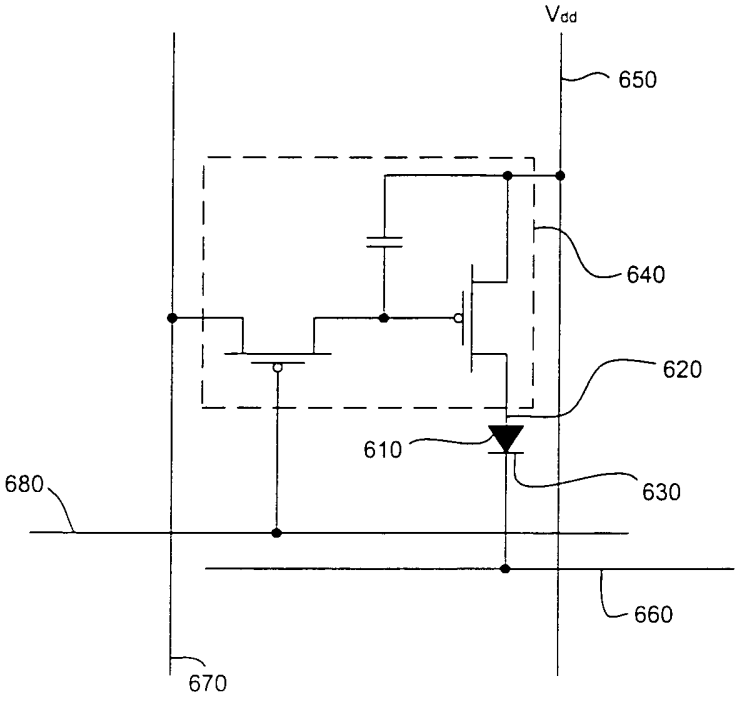



Figure 6

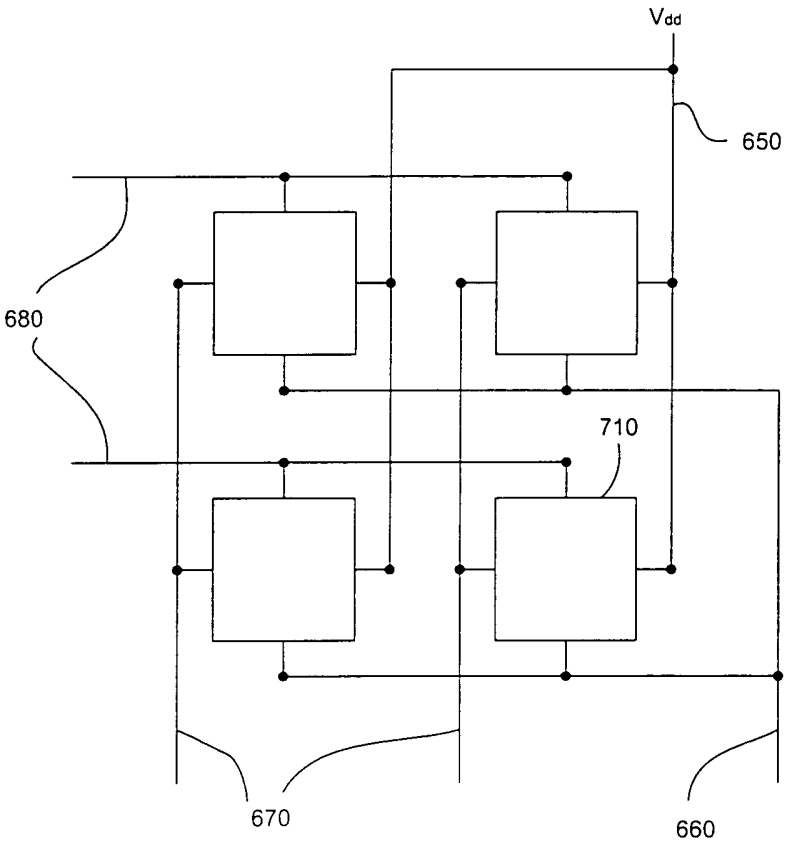



Figure 7

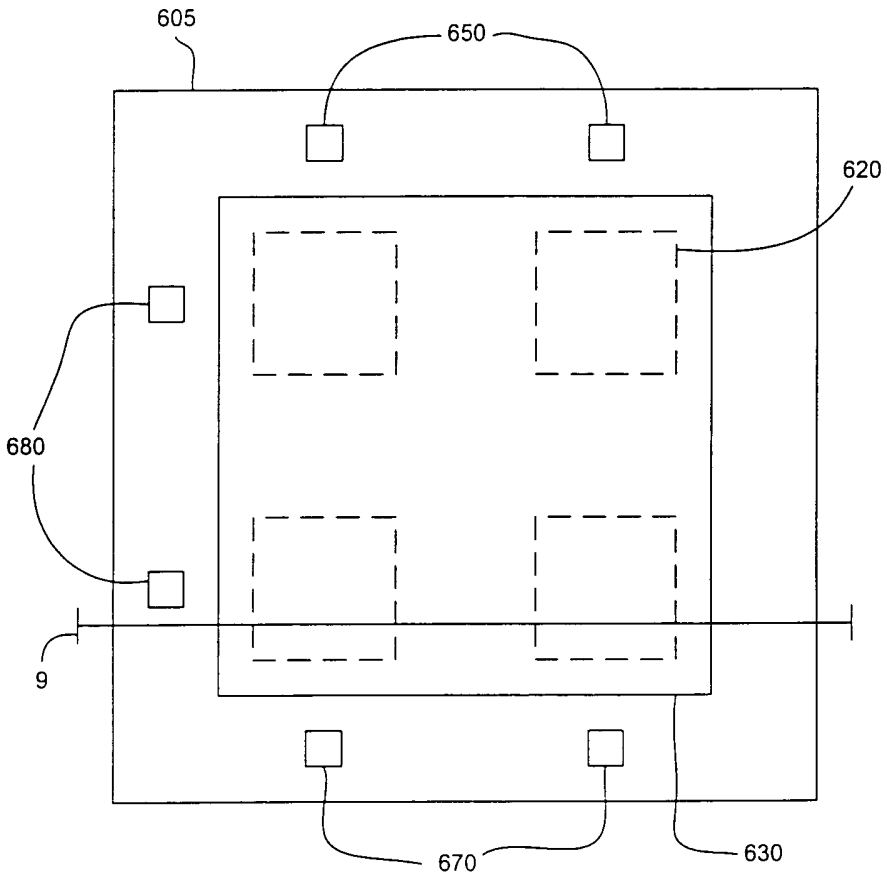



Figure 8

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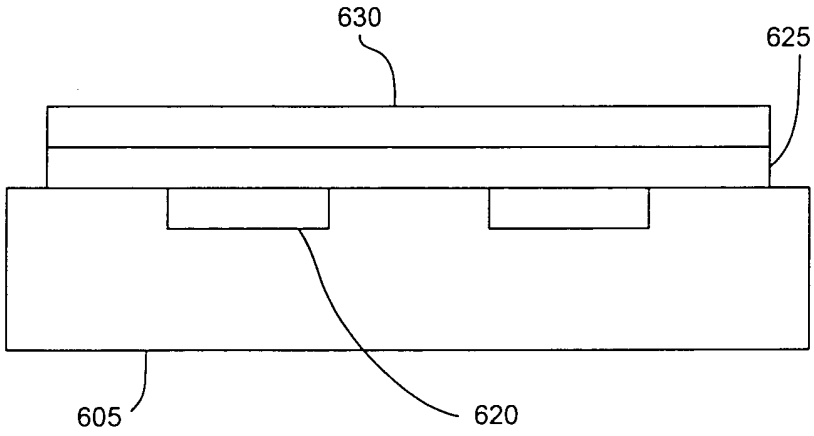



Figure 9

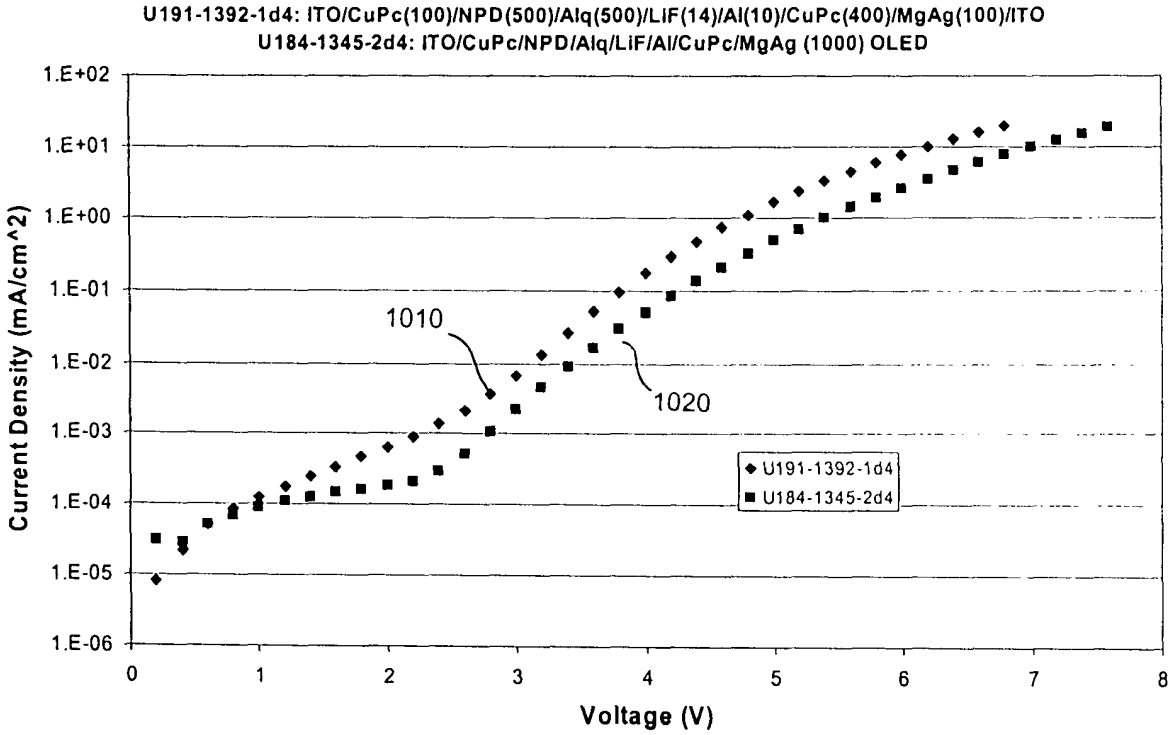

U191-1392-1d4: ITO/CuPc(100)/NPD(500)/Alq(500)/LiF(14)/Al(10)/CuPc(400)/MgAg(100)/ITO
U184-1345-2d4: ITO/CuPc/NPD/Alq/LiF/Al/CuPc/MgAg (1000) OLED
Current Density (mA/cm^2)
1.E+02
1.E+01
1.E+00
1.E-01
1.E-02
1.E-03
1.E-04
1.E-05
1.E-06
0
1
2
3
4
5
6
7
8
Voltage (V)
1010
1020
U191-1392-1d4
U184-1345-2d4

Figure 10

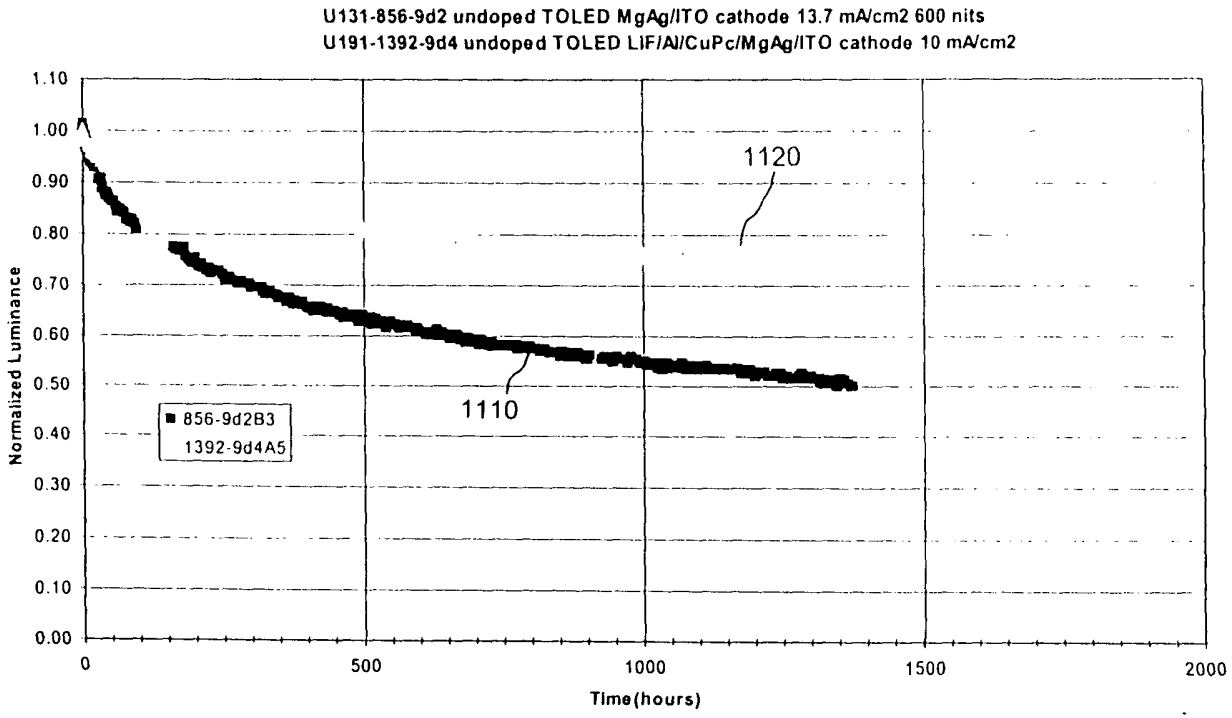

U131-856-9d2 undoped TOLED MgAg/ITO cathode 13.7 mA/cm2 600 nits
U191-1392-9d4 undoped TOLED LiF/Al/CuPc/MgAg/ITO cathode 10 mA/cm2
Normalized Luminance
1.10
1.00
0.90
0.80
0.70
0.60
0.50
0.40
0.30
0.20
0.10
0.00
0
500
1000
1500
2000
Time(hours)
856-9d2B3
1392-9d4A5
1120
1110

Figure 11